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STATE OF MONTANA

**BULLETIN**

OF THE

**Department of Public Health**

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Vol. 6

April 15, 1913

No. 1

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**MONTANA STATE BOARD OF HEALTH**

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EMIL STARZ, Ph. D.

State Bacteriologist,

ALLAN TUFFORD,

Consulting Architect.

**HELENA, MONTANA.**

Published Monthly at Helena, by the State Board of Health.

"The science of disease prevention, if properly applied, can add fifteen years to the present average length of human life."—Prof. Irving Fisher, Yale.

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This Bulletin will be mailed monthly to any person in Montana upon request mailed to the Secretary of the State Board of Health at Helena.



Parmly Billings Memorial Library

At a meeting of the State Board of Health April 3rd, 1913, the following rules and regulations were adopted.

### TUBERCULOSIS.

Reg. 1.—Care of tuberculosis in Hospitals. All Hospitals accepting for treatment of care any person suffering from tuberculosis shall provide separate quarters, rooms or wards for such cases, and such quarters, rooms or wards shall not be used for the treatment or care of any persons not afflicted with tuberculosis.

Reg. 2.—Where tuberculosis patients are committed to any County Hospital or County poor farm provisions for their care must be provided as required for hospitals, as in Regulation 1.

Reg. 3.—All sputum must be received in a sputum cup that can be burned, or in napkins. All cups must be removed at least three times in twenty-four hours and as much oftener as may be necessary. Immediately after changing the sputum cup, or napkins, they must be burned.

Reg. 4.—All surgical dressings removed from a tuberculous lesion must be immediately burned.

Reg. 5.—In hospitals or other institutions of a public character where persons suffering from tuberculosis are received for care or treatment separate bedding, towels, dishes and nappery must be provided for such persons, and all such bedding, towels, etc., must at all times be kept entirely separate from those provided for other patients.

Reg. 6.—When any dwelling is vacated after having been occupied by any persons known to have been suffering from tuberculosis, such dwelling shall be thoroughly disinfected in the manner prescribed by the State Board of Health for all other communicable diseases, except that the time the house shall remain closed for the action of formaldehyde gas shall be eight hours instead of four.

Reg. 7.—When any room or compartment in any hotel, lodging house or compartment house has been occupied by any person known to have been suffering from tuberculosis, such room or compartment, upon being vacated, shall be thoroughly disinfected in manner prescribed in Regulation 6.

### WHOOPING COUGH.

Reg. 1.—When a case of whooping cough is reported to the local or County Health Officer, he must placard the house in which such case occurs with a card bearing the words

“Whooping Cough Here” in letters not less than six inches high, and he must notify occupants of such house that no person suffering from whooping cough shall be allowed to attend school, church, or other public gathering, nor shall such a person be allowed to enter a railway car or other public conveyance until such time as the local, County, or State Health officer shall determine that the case is no longer capable of transmitting the disease.

Reg. 2.—No milk can be sold from a dairy on whose premises a case of whooping cough exists unless such case is isolated in a manner meeting with the approval of the local, County or State Health Officer.

#### **POLIOMYELITIS (Infantile Paralysis.)**

Reg. 1.—Patients suffering from poliomyelitis must be isolated as thoroughly as possible and room in which patient is confined must be thoroughly screened against flies.

Reg. 2.—The house in which a patient suffering from poliomyelitis is confined must be placarded by the health officer, thus, “Poliomyelitis Here” in letters not less than six inches high.

#### **EPIDEMIC CEREBRO SPINAL MENINGITIS.**

Reg. 1.—Houses in which a case of cerebro spinal meningitis occurs must be placarded by the local or county health officer thus, “Cerebro Spinal Meningitis Here” in letters not less than six inches high.

Reg. 2.—Cases of cerebro spinal meningitis must be isolated as thoroughly as possible.

Reg. 3.—On recovery or death of such cases, rooms in which cases were confined must be disinfected in the manner prescribed by the State Board of Health.

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#### **GENERAL SANITARY REGULATIONS.**

Reg. 1.—The use of the common or public drinking cup is hereby prohibited in all hotels, restaurants, lodging houses and other public places.

Reg. 2.—The common roller towel is hereby abolished in all hotels restaurants, lodging houses and other public places.

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The following Rules and Regulations of the Northwestern Sanitation Association were also adopted by the Montana

State Board of Health.

Regulation 1.—No person having reason to believe that he or she is suffering from cholera, diphtheria (or membranous croup), plague, scarlet fever, smallpox, yellow fever, chicken pox or measles, shall enter, nor shall any person permit any one under his or her care so infected, to enter any public conveyance or common carrier.

Regulation 2. All conductors of railroad trains and street cars and captains of boats, if they have any reason to suspect any passenger to be suffering from any disease enumerated in Regulation 1, shall immediately notify the nearest health officer or company physician (when the health officer is not available) located on their route, by the most direct and speedy means possible, of their belief, and such health officer or company physician must meet such railroad train at the station, or such street car or boat at the nearest possible point, and make a thorough examination of such person and determine whether or not such disease exists.

Regulation 3. When the health officer or physician notified as provided in Regulation 2 shall find any person in a car, boat or other public conveyance to be afflicted with smallpox, diphtheria, scarlet fever, or other quarantinable disease, the car, boat or other public conveyance shall be turned over to the health officer or physician, who shall treat such conveyance as infected premises. When in the judgment of the health officer or physician the case is in such early stage of development that other passengers are not affected, the patient shall be removed from the conveyance and it shall be allowed to proceed. If the health officer or physician shall deem that the exposure is such as to have infected other passengers, he shall call upon the person in charge to remove infected conveyance from service at the first place where suitable accommodations can be secured and such health officer or physician shall notify the health officer in whose jurisdiction the infected conveyance is left.

Regulation 4. No person shall spit on the floor, furnishings or equipment of any public conveyance, eating room, depot, platform, waiting room, deck or wharf. Each common carrier is hereby required to post or display in each day coach, smoking car or boat a notice in form or substance as follows:

For cars: "Spitting and throwing of refuse on the floor, furnishings or vestibules of this car are prohibited by law."



For waiting rooms, eating rooms, toilets: "Spitting and throwing of refuse on the floor or furnishings of this room are prohibited by law."

For boats: "Spitting and throwing of refuse on the deck, floors or furnishings or in toilet rooms of this boat are prohibited by law."

Regulation 5. Each sleeping car shall be furnished with one (1) spittoon for each section or compartment. Each smoking compartment in day coaches, chair, parlor and sleeping cars, shall be furnished with at least two (2) spittoons. Each smoking car shall be provided with at least twelve (12) spittoons. Each combination smoking car shall be provided with at least six (6) spittoons. Each boat carrying passengers shall provide one spittoon or more for each state-room and general smoking saloon.

Regulation 6. The drinking water and ice supply used in stations and on public conveyances shall contain no ingredients deleterious to health. In the construction of new equipment all receptacles for drinking water should be so constructed that they cannot be opened readily by any one except those having charge of them. Nothing but ice and water shall be placed in the receptacles used for the storage of drinking water. The receptacle for drinking water shall be kept thoroughly clean at all times and shall be drained and flushed at car cleaning terminals.

When a water-borne disease has developed in epidemic form in a municipality, water from such place for car tanks shall not be used without the approval of the State Board of Health.

Regulation 7. The use of the common or public drinking cup is prohibited on all public conveyances and in waiting rooms.

Regulation 8. All public conveyances, including toilet rooms therein, shall be kept in a reasonably clean condition at all times. Dry sweeping and dusting of occupied conveyances is strictly prohibited.

Regulation 9. At cleaning terminals all passenger equipment shall be thoroughly cleaned and aired and after such cleaning the hoppers, urinals and toilet floors shall be mopped with a one or two per cent solution of official formaldehyde.

Regulation 10. Upon arrival at cleaning terminals, sleeping cars shall be cleaned as follows:

The windows, doors and ventilators shall be opened; the

upper berths let down; the seat bottoms and backs lifted out; the mattresses, blankets, pillows, curtains, etc., loosely arranged for airing. If the weather permits, the removable articles mentioned above shall be taken out of the car, dusted and aired in the open, and exposed to the sunlight for a time. The rest of the cleaning of the car shall be carried out as directed for day coaches under Regulation 9.

Regulation 11. Sleeping cars shall be fumigated at least once every two months, and after the car is known to have carried any infectious disease. Fumigation shall be carried out before the carpets have been removed or the cleaning of the car begun, and record shall be posted in the car showing where and when the fumigation was done. Preparation for fumigation shall be as follows:

Close all outside doors, windows, deck sash and ventilators. Arrange one window or more on each side of the car so that it can be opened from the outside to avoid the necessity of entering the car while the formaldehyde fumes are strong. Open all interior doors. Pull the seats forward and loosen the pillows in the pillow boxes. Open the upper berths and lay the head boards across the seats so that one corner will rest upon the seat arm. Lay the lower mattresses on the head boards with the middle arched upwards, the ends being pushed together. Raise the curtain poles and hang the curtains near the end by a single hook. Throw the blankets over the curtain poles, making as few folds or thicknesses of the blanket as possible. Arch the upper mattresses in the upper berths.

Fumigation shall be carried out along the lines approved by the State Board of Health. After the car has been fumigated it shall remain closed for a period of at least three (3) hours, after which time the doors and windows shall be opened as soon as possible. On rainy or damp days the car need not be kept closed after fumigation for a longer period than one hour.

Regulation 12. In all public conveyances the food boxes, refrigerators, lockers, drawers and cupboards shall be kept thoroughly sweet and clean at all times.

Regulation 13. The common roller towel shall be abolished on all common carriers and in waiting rooms.

Regulation 14. All toilet rooms, water closets, urinals and toilet appliances in stations shall be cleaned daily, and when vaults or surface receptacles are used in connection with closets

at stations, such vaults or surface receptacles shall receive at least a weekly treatment with fresh lime or some other agent approved by a board of health. All outside closets shall be locked and the key kept by the agents, who shall deliver it to the patrons on request. There shall be a notice "Key at the Office" posted on the closet door.

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**Regulations Relative to Camp Sanitation Recommended by the  
Northwestern Sanitation Association, St. Paul, Minne-  
sota, December 5, 1912.**

Regulation 15. Hereafter contractors and all other persons who may establish an industrial camp or camps, for the purpose of logging or any like industry, or for the purpose of construction of any road, railroad or irrigation canal, or other work requiring the maintenance of camps for men engaged in such work, or any other temporary or permanent industrial camp of whatsoever nature, shall report to the state health official concerning the location of such camp or camps, and shall arrange such camp or camps in a manner approved by the state health official, so as to maintain good sanitary conditions, and shall at all times keep such camp or camps in a sanitary condition satisfactory to the state health official.

Regulation 16. Camps should be established upon dry, well-drained ground.

Regulation 17. Any natural sink holes or collections or pools of water should be artificially drained and filled when the camp is first established.

Regulation 18. The general scheme of the relation of the structure of the camps should be as follows: Stable and kitchen should be at the opposite ends of the camp and separated by a distance as great as consistent with the natural topography of the land and with the necessity for convenient access to the stables.

Regulation 19. Eating houses should be next to the kitchen and beyond the eating houses should come the bunk houses, and between the bunk houses and the stables the toilets for the men in the camp.

Regulation 20. The use of the toilets provided for the men should be made obligatory and instant discharge of any employees polluting the soil must be rigidly enforced to make such rules effective.

Regulation 21. A small temporary incinerator should be constructed near the stables. Incinerators capable of doing effective work can be constructed for not over Twenty-five Dollars (\$25.00) sufficient to care for all the refuse of a camp of one hundred fifty (150) men and stables of ten (10) to twelve (12) horses.

Regulation 22. There must be in camps of one hundred (100) men or over one employee whose particular duty should be acting as scavenger and garbage collector.

Regulation 23. All manure should be gathered and burned each day, and for the convenience of the collector should be thrown into a tightly covered box.

Regulation 24. All fecal matter should be treated in the same way or else treated in some other approved manner. Collection and incineration is the safest in the long run and the easiest method by making use of the removable pan, which can be freshly limed.

Regulation 25. The kitchen and eating house in particular should be effectively screened. It is also desirable to have this done for the bunk houses.

Regulation 26. All garbage should be collected in tight cans and incinerated daily along with the manure and other rubbish.

Regulation 27. Non-inflammable refuse, such as tin cans, should be collected daily and placed in a deep earth pit and covered with a light covering of earth each day or covered with oil and burned over.

Regulation 28. All urinals should consist of open trenches lined with quick lime, and fresh quick lime should be added in the proportion of one-half barrel per day per one hundred men.

Regulation 29. All food supplies should be carefully screened.

Regulation 30. Thorough and systematic scrubbing of kitchens and eating houses, and to a less extent bunk houses, should be regularly insisted upon.

Regulation 31. The supply of water for the camp should be carefully decided upon, and wherever possible, if the camp is to remain several weeks, it is well to run it in pipes from an absolutely uncontaminated source.

Regulation 32. All sick from whatever cause should be isolated from the remainder of the crew immediately.

Regulation 33. All persons engaged in the care of the premises and handling of the food, particularly cooks and helpers,



should be carefully examined and particular attention paid to the point as to whether or not they have suffered from typhoid fever within recent years.

### OPPORTUNITY.

They do me wrong who say I come no more,  
When once I knock and fail to find you in;  
For every day I stand outside your door,  
And bid you wake and rise to fight and win.

Wail not for precious chances passed away;  
Weep not for golden ages on the wane!  
Each night I burn the records of the day;  
At sunrise every soul is born again.

Laugh like a boy at splendors that have sped;  
To vanished joys be blind and deaf and dumb;  
My judgments seal the dead past with the dead  
But never bind a moment yet to come.

Though deep in mire, wring not your hands and weep;  
I lend my arms to all who say, "I can!"  
No shamefaced outcast ever sank so deep  
But yet might rise again and be a man!

Dost thou behold thy lost youth all aghast?  
Dost reel from righteous retribution's blow?  
Then turn from blotted archives of the past  
And find the future's pages white as snow.

Art thou a mourner? Rouse thee from thy spell;  
Art thou a sinner? Sins may be forgiven;  
Each morning gives thee wings to flee from hell—  
Each night a star to guide thy feet to heaven.

—Walter Malone.

**Bacteriological Examinations Made During the Month of  
March, 1913, By Emil Starz, Bacteriologist, Helena,  
Montana.**

March 1st. Examination of swabbings from the throat of two cats for diphtheria. Ordered by Dr. M. E. Knowles, Helena, Mont. Found Bacill. Diphtheriae.

March 3rd. Examination of pleural effusion for pathogenic germ. Ordered by Dr. F. Harris Russell, Cascade, Mont. Found: Pneumococci.

March 4th. Examination of culture for diphtheria. Ordered by Dr. Balsam, Billings, Mont. Found: Staphylococci.

March 5th. Examination of culture for diphtheria. Ordered by Dr. Smith, Townsend, Mont. Found: Streptococci.

March 6th. Examination of culture for diphtheria. Ordered by Dr. J. G. Thompson, Helena, Mont. Found: Streptococci.

Examination of blood for blackleg bacilli. Ordered by Dr. W. J. Butler, State Veterinary Surgeon, Helena, Mont. Found: Bacillus of symptomatic anthrax.

March 9th. Examination of sputum for bacilli tuberculous. Ordered by Dr. S. G. Cooney, Helena, Mont. Found: Negative.

March 10th. Examination of culture for diphtheria. Ordered by Dr. Consler, Glendive, Mont. Found: Bacilli Diphtheria.

March 14th. Examination of culture for Bac. Diphtheria. Ordered by Dr. Balsam, Billings, Mont. Found: Bacilli Diphtheria.

March 16th. Examination of blood for Widal reaction. Ordered by Dr. McCabe, Helena, Mont. Found: Positive.

March 18th. Examination of throat swabbings. Ordered by Dr. Jno. Treacy, Helena, Mont. Found: Streptococci.

March 19th. Examination of discharge for micrococcus gonorrhoeae neisser. Ordered by Dr. Fligman, Helena, Mont. Found: Negative.

Examination of sputum for Bac. Tuberc. Ordered by Dr. B. C. Brooke, Helena, Mont. Found: None.

March 20th. Examination of pus for micrococcus gonorrhoea. Ordered by Dr. Cooney, Helena, Mont. Found: Negative.

March 21st. Examination of blood for Widal reaction. Ordered by Dr. Shore, Gardiner, Mont. Found: Positive.

Examination of blood for pathogenic germs. Ordered by Dr. Morrow, Dillon, Mont. Found: Streptococci.

March 22nd. Examination of culture for diphtheria. Ordered by Dr. Hamerel, Glendive, Mont. Found: Streptococci.

March 23rd. Examination of culture for diphtheria. Ordered by Dr. O'Malley, Chinook, Mont. Found: Bacilli Diphtheriae.

March 24th. Examination of culture for Bac. Diphtheria. Ordered by Dr. Balsam, Billings. Found: Staphylococci and Bac. of symptomatic anthrax.

Examination of pus for Bac. Tuberc. Ordered by Dr. McCabe, Helena, Mont. Found: Negative.

March 25th. Examination of three cultures for Bac. Diphtheria. Ordered by Dr. Hugh Heaton, Lavina, Mont. Found: In one diphtheriae Bacilli, in the other two streptococci and staphylococci.

Examination of pus for pathogenic germs ordered by Dr. McCabe, Helena, Mont. Found: Staphylococci.

March 26th. Examination of throat swabbings. Ordered by Dr. Peek, Helena, Mont. Found: Staphylococci.

March 27th. Examination of sputa (2 samples) for Bac. Tuberc. Ordered by Dr. Baxter, Libby, Mont. Found: Negative.

March 27th. Examination of shreds in urine for gonococci. Ordered by Dr. Cooney, Helena, Mont. Found: Gonococci.

Examination of pus for pathogenic germs. Ordered by Dr. Fligman, Helena, Mont. Found: Gonococci.

March 28th. Examination of sputum for bacilli tuberc. Ordered by Dr. N. Salvail, Helena, Mont. Found: Negative.

March 29th. Examination of sputum for bac. tuberc. Ordered by Dr. Cooney, Helena, Mont. Found: Negative.

March 30th. Examination of pus for gonococci. Ordered by Dr. Fligman, Helena, Mont. Found: Negative.

March 31st. Examinations of throat swabbings for bac. diphtheriae. Ordered by Dr. Jno. Treacy, Helena, Mont. Found: Streptococci.

Respectfully submitted,

EMIL STARZ, Bacteriologist.

**Communicable Diseases Reported to the State Board of Health  
for the Month of March, 1913.**

**SMALLPOX**—Cases of Smallpox were reported as follows: Cascade (Excl. of Gt. Falls), 2; Gt. Falls, 7; Custer, 19; Dawson, 1; Flathead (Excl. of Kalispell), 16; Kalispell, 8; Fergus, 6; Bozeman, 2; Hill, 2; Jefferson, 3; Lincoln, 3; Lewis and Clark, 1; Meagher, 1; Missoula City, 1; Musselshell, 1; Livingston, 2; Rosebud, 1; Butte, 2; Valley, 1. Total, 79. Total last month, 86. Total March, 1912, 45.

**DIPHThERIA**—Cases of Diphtheria were reported as follows: Blaine, 1; Anaconda, 3; Dawson, 1; Hill, 1; Musselshell, 1; Silver Bow (Excl. of Butte), 1; Butte, 1; Teton, 1; Yellowstone, 2. Total, 12. Total last month, 13. Total, 1912, 5.

**SCARLET FEVER**—Cases of Scarlet Fever were reported as follows: Beaverhead, 2; Blaine, 1; Broadwater, 1; Cascade (Excl. of Gt. Falls), 4; Gt. Falls, 29; Chouteau, 11; Custer, 1; Anaconda, 1; Flathead, 1; Fergus, 16; Hill, 1; Jefferson, 1; Lincoln, 1; Helena, 2; Miss. (Excl. of Miss. City), 1; Missoula City, 3; Madison, 13; Park (Excl. of Livingston), 1; Livingston, 6; Silver Bow (Excl. of Butte), 6; Butte, 11; Teton, 3; Valley, 2; Yellowstone, 2. Total, 120. Total last month, 58. Total March, 1912, 53.

**TYPHOID FEVER**—Beaverhead, 2; Cascade (Excl. of Gt. Falls), 28; Dawson, 4; Helena, 4; Sweet Grass, 1. Total 39. Total last month, 39. Total, March, 1912, 10.

**MEASLES**—Cases of Measles were reported as follows: Carbon, 7; Gt. Falls, 7; Custer, 19; Dawson, 9; Flathead, 3; Jefferson, 14; Lincoln, 3; Madison, 2; Musselshell, 2; Park, 10; Livingston, 5; Powell, 6; Ravalli, 1; Silver Bow (Excl. of Butte), 35; Butte, 218; Teton 6; Valley, 22; Yellowstone (Excl. of Billings), 3; Billings, 3. Total, 375. Total last month, 171. Total, March, 1912, 87.



**BIRTHS (\*EXCLUSIVE OF STILLBIRTHS) REPORTED TO STATE BOARD  
OF HEALTH FOR MONTH OF MARCH, 1913, AND COMPARA-  
TIVE BIRTH AND DEATH RECORD IN THE STATE.**

	Males	Females	Totals	Deaths	Excess of births	Excess of deaths
Beaverhead .....	1	...	1	7	...	6
Broadwater .....	9	3	12	2	10	..
Carbon .....	15	10	25	11	14	..
Cascade (Excl. of) .....	19	15	34	5	29	..
Great Falls .....	23	21	44	43	1	..
Chouteau .....	1	4	5	9	...	4
Custer .....	9	12	21	7	14	..
Dawson .....	15	14	29	8	11	..
Deer Lodge (Excl. of) .....	1	1	2	11	...	9
Anaconda .....	13	13	26	17	9	..
Fergus .....	16	9	25	14	11	..
Flathead (Excl. of) .....	14	6	20	10	10	..
Kalispell .....	6	9	15	3	12	..
Gallatin (Excl. of) .....	11	6	17	6	11	..
Bozeman .....	4	4	8	9	...	1
Granite .....	2	2	4	3	1	..
Jefferson .....	2	3	5	6	...	1
Lewis and Clark (Excl. of) .....	7	7	14	11	3	..
Helena .....	9	19	28	14	14	..
Lincoln .....	5	9	14	1	13	..
Madison .....	2	7	9	7	2	..
Meagher .....	8	10	18	5	13	..
Missoula (Excl. of) .....	6	3	9	7	2	..
Missoula City .....	20	15	35	12	23	..
Musselshell .....	12	11	23	7	16	..
Park (Excl. of) .....	1	2	3	8	...	5
Livingston .....	2	9	11	4	7	..
Powell .....	6	7	13	4	9	..
Ravalli .....	6	8	14	10	4	..
Rosebud .....	2	5	7	3	4	..
Sanders .....	1	2	3	2	1	..
Silver Bow (Excl. of) .....	12	17	29	25	4	..
Butte .....	49	33	82	84	...	2
Sweet Grass .....	3	3	6	1	5	..
Teton .....	20	6	26	12	14	..
Valley .....	28	18	46	9	37	..
Yellowstone (Excl. of) .....	11	13	24	7	17	..
Billings .....	14	18	32	8	24	..
Blaine .....	9	14	23	12	11	..
Hill .....	11	15	26	12	14	..
<b>TOTALS .....</b>	<b>405</b>	<b>383</b>	<b>788</b>	<b>436</b>	<b>370</b>	<b>28</b>

\*Number of stillbirths = 38.

**DEATHS (EXCLUSIVE OF STILLBIRTHS) REPORTED TO THE STATE  
BOARD OF HEALTH FOR THE MONTH OF MARCH, 1913, AR-  
RANGED ACCORDING TO COUNTIES AND  
PRINCIPAL CITIES.**

	Spotted Fever	Small Pox	Tuber- culosis	Diphtheria	Scarlet Fever	Measles	Typhoid Fever	Meningitis	Whooping Cough	Pneumonia	Nephritis	Organic Heart Disease	Malignant Tumors	Acute Intestinal Diseases	Violence	Suicide	Alcoholism	All Other Causes	Totals
Beaverhead										3					1			3	7
Broadwater													1		1			1	2
Carbon			2							1	2			1				6	11
Cascade (Excl. of)													1					1	5
Great Falls			2		7	1	1	2		4	3	1			2		1	18	43
Chouteau													1	1		1		4	9
Custer			2							1	3							1	7
Dawson			1							1	1				1			3	7
Deer Lodge (Excl. of)																		10	11
Anaconda								1		4	1	1			1		1	8	17
Fergus					2			2						1				5	14
Flathead (Excl. of)										3			1		1			5	10
Kalispell								1								1		1	3
Gallatin (Excl. of)												2			1			3	6
Bozeman								1		1	1		1					3	9
Granite			1														1	1	6
Jefferson						2				2					1			1	3
Lewis and Clark (Excl. of)								1			2	1			1			6	11
Helena										4	3	2			1			2	14
Lincoln								2		1			2		1			1	7
Madison									1	1								4	1
Meagher															1			3	5
Missoula (Excl. of)													1			1		5	7
Missoula City	1		3										1	1	1	1		3	12
Musselshell								1					1					3	7
Park (Excl. of)				1						1					1			5	8
Livingston			1															3	4
Powell											2				1			1	4
Ravalli								1		4	1							2	10
Rosebud										1					1			1	3
Sanders																		2	2
Silver Bow (Excl. of)			6							7	2	2		1	3		1	3	25
Butte			13		2	1		3		18	2	8	3	1	4		1	28	84
Sweet Grass																			1
Teton									1										1
Valley			2							3					1			2	9
Yellowstone (Excl. of)				1										1				2	4
Billings								1		1						1		5	8
Blaine										2	1	1		1				7	12
Big Horn										1									2
Hill												2				1		9	12
Stillwater										1									1
TOTALS	1	37	1	11	4	4	15	74	21	35	11	8	27	5	7	175	436		

Estimated population	375,000
Monthly death rate per 1,000	.860
Annual death rate per 1,000 population	10.32

## DIVISION OF FOODS AND DRUGS.

Dr. W. F. Cogswell, Secretary, State Board of Health,  
Food and Drug Commissioner; F. J. O'Donnell,  
Inspector.

### Laboratory Staff.

W. M. Cobleigh, Chemist.  
C. E. Mollet, Director, Drug Analysis.  
D. L. Weatherhead, Analyst.  
D. B. Swingle, Bacteriologist.  
Carl Gottschalck, Assistant in Chemistry.  
Ella Olsen, Clerk and Stenographer.

## LABORATORY REPORT.

By W. M. Cobleigh, Chemist, and D. L. Weatherhead, Analyst.  
Foods and Water Analyzed During the Month of March.

### SUMMARY.

	Number Legal	Number Illegal	Total
Bottled Beverages .....	13	1	14
Butter .....	7	6	13
Cream .....	0	1	1
Ice Cream .....	0	1	1
Lard .....	3	1	4
Syrup .....	1	0	1
Oleomargarine .....	1	0	1
Total .....	25	10	35
Water .....	..	..	4
TOTALS .....			39

## BOTTLED BEVERIDGES.

Lab.	Date.	Description.	Remarks.
1733	3-22-13	Grape Soda. On label: Imitation. Grape Soda. Artificially colored. Brooks and Powell, Red Lodge, Mont., Manufacturers.	Complies with standard. Color: Amaranth, permissible.
1734	"	Sarsaparilla. Brooks & Powell, Red Lodge, Mont. On label: Sarsaparilla.	Complies with the standard.
1735	"	Lemon Soda. Brooks & Powell, Red Lodge. On cap: Lemon Soda. Artificial flavor and color.	Complies with the standard.
1736	"	Ginger Ale. Brooks & Powell, Red Lodge, Mont. On cap: Ginger Ale. Artificial color and flavor.	Contains capsicum. Labeled artificial flavor.

BOTTLED BEVERAGES—(Concluded.)

Lab.	Date.	Description.	Remarks.
1738	"	Orange Soda. On label: Artificial color and flavor. Orange Soda. Red Lodge Bottling Works, Red Lodge, Mont.	Complies with the standard. Color: Orange I, permissible.
1739	"	Birch Beer. On label: Birch Beer. Artificial flavor and color. Brooks & Powell, Red Lodge, Mont.	Complies with the standard.
1740	"	Strawberry Soda. Brooks & Powell, Red Lodge, Mont. On cap: Strawberry, artificial flavor and color.	Complies with the standard. Color: Amaranth, permissible.
1744	"	Root Beer. On label: Root Beer. Artificial color and flavor. Eureka Bottling Works, Billings, Mont.	Complies with the standard.
1745	3-24-13	Cream Soda. On label: Cream Soda. Pure, palatable, refreshing. For table and buffet. Harmless color added. Eureka Bottling Works, Billings, Mont.	Complies with the standard. short in volume Color: Amaranth, permissible.
1746	"	Raspberry Soda. On label: Imitation Raspberry. Harmless color added. Pure, palatable, refreshing. For table and buffet. Eureka Bottling Works, Billings, Mont. On cap: Artificial color and flavor.	Complies with the standard. Color: Amaranth permissible.
1747	"	Iron Beer. On label: Iron Beer (Trade Mark). Colored with harmless sugar color. Refreshing. Non-alcoholic. Iron Beer is compounded of absolutely pure and wholesome ingredients and is therefore a delicious harmless beverage. It is non-alcoholic and contains no habit-creating drugs. An ideal safe drink for every member of the family. Manufactured by the Lehman-Rosenfeld Co., Cincinnati, Ohio. Sole proprietors. Guaranteed by us under the Food and Drug Act, June 30, 1906.	Complies with the standard. Short in volume.
1748	"	Strawberry Soda. On label: Imitation Strawberry. Harmless color added. Eureka Bottling Works, Billings, Mont.	Complies with the standard. Short in volume. Color: Amaranth, permissible.
1749	"	Orange Soda. On label: Orange Soda. Harmless color added. Eureka Bottling Works, Billings, Mont. (On cap: Orange Cider.)	Complies with the standard. Short in volume. Color: Amaranth, permissible.
1751	3-22-13	Ginger Ale. Label: Ginger Ale. Eureka Bottling Works, Billings, Montana.	Adulterated: Contains capsicum and the fact is not stated on label. Short in volume.



## MISCELLANEOUS.

Lab.	Date.	Description.	Remarks.
1707	3- 4-13	Butter. Retailer: Chas. Bracken, Butte, Mont. On label: Better Butter. Fairmont Creamery Co., Omaha, Neb., 16 ozs. butter put in package at the creamery.	Underweight and misbranded. Weight on package stated incorrectly.
1708	"	Butter. Retailer: E. B. Granberg, Butte, Mont. On label: Excelsior Brand This package weighed 16 ozs., when made. Reno Creamery Co., Reno, Nev.	Underweight and misbranded, weight on package stated incorrectly. Adulterated: Low in butter fat.
1710	"	Butter. Retailer: Harlowton Grocery Co., Harlowton, Mont. Producer: Henningsen Produce Co., Butte, Mont. On label: Ferndale Butter. Sold by the package.	Adulterated: Low in butter fat.
1711	"	Butter. Retailer: Urner Merc. Co., Harlowton. Producer: Dakota Produce Co., Aberdeen, S. Dakota. On label: Fernleaf Creamery Butter. Every package guaranteed.	Adulterated: Low in butter fat.
1712	"	Butter. Retailer: H. E. Marshall, Harlowton, Mont. On label: Yellow Rose Butter. Manufactured by G. C. Gehon, Bristol, S. Dak. This package contains between 15 and 16 ounces.	Complies with the standard.
1713	"	Butter. Retailer: Abel Bros., Lewistown, Mont. On label: Blue Valley Butter. General Offices, Chicago, Ill. Blue Valley Creamery Co. Packed full weight, one pound. Guaranteed under Food and Drug Act, June 30, 1906. Serial No. 43728.	Underweight and misbranded. Weight on package stated incorrectly. Adulterated: Low in butter fat.
1715	3-13-13	Butter. Retailer: Slater Bros., Lewistown, Mont. On label: Blue Ribbon. Fancy Creamery Butter. This package contains between 15 and 17 ounces. Hettinger Creamery Co., Hettinger, N. Dak.	Complies with the standard.
1716	"	Butter. Retailer: Slater Bros., Lewistown, Mont. Producer: Swift & Co., Chicago, Ill. On label: Brookfield Extra Creamery Butter. 16 ounces net wgt.	Complies with the standard.
1718	"	Butter. Retailer: Power Mercantile Co., Lewistown, Mont. On label: Hazelnut Brand Butter. Jensen Creamery Co., Salt Lake City. 15-16 ounces. Guaranteed under the Food and Drug Act of June 30, 1906. Serial No. 21952.	Underweight and misbranded; weight on package stated incorrectly.
1719	"	Butter. Retailer: Power Mercantile Co., Lewistown, Mont. Producer: Henningsen Produce Co., Butte, Mont. On label: Delicious butter in dainty cubes.	Complies with the standard.

MISCELLANEOUS—(Continued.)

Lab.	Date.	Description.	Remarks.
1720	"	Butter. Retailer: Power Mercantile Co., Lewistown, Mont. On label: Elgin Special Butter. This package contained 15 1-2 ounces when made. Distributed by Jensen Creamery Co., Salt Lake City.	Underweight and misbranded: weight on package stated incorrectly.
1722	"	Butter. Retailer: Lewistown Meat Co., Lewistown, Mont. Producer: Henningsen Produce Co., Butte, Mont. On label: Oakdale Creamery Butter. Every package guaranteed perfect.	Adulterated: low in butter fat.
1742	3-18-13	Ice Cream. Retailer and manufacturer: Brooks & Powell, Red Lodge. Label: "Peerless."	Adulterated; low in fat.
1615	3- 5-13	Lard. On label: Pure Kettle Rendered Lard. Put up by Sanitary Meat Co., Moran & Weggenman, Helena, Mont.	Short in weight. Adulterated; contains beef fat. Variation from weight, 15.6%.
1714	3-13-13	Lard. On label: Pure Kettle Rendered Lard. Put up by Abel Bros., Lewistown, Mont.	Complies with the standard. Short in weight. Sample sold at "about 3 pounds." The variation from 3 pounds is 12.3%.
1717	"	Lard. On label: Slater Bros. Home-made Lard. Lewistown, Mont.	Complies with the standard. Short in weight. Sample sold as "about 2 pounds." The variation from 2 pounds is 19.1%.
1721	"	Lard. On label: Choice Family Lard put up by Lewistown Meat Co., Lewistown, Mont.	Complies with the standard. Sample sold at "about 3 pounds." The variation from 3 pounds is 17.2%.
1709	3-11-13	Oleomargarine. Retailer: A. C. Graves, Harlowton, Mont. On label: Meadow Grove Brand. 16 oz. net. U. S. inspected and passed under act of Congress, June 30, 1906. Cudahy Packing Co., Kansas City, Kansas.	Complies with the standard.
1328	9-30-12	Syrup. Retailer: L. B. Howell & Co., Brenner, Mont. Manufacturer: D. B. Schully Syrup Co., Chicago, Ill. On label: Westmoreland Pure maple and rock candy syrup.	Short in volume. Complies with the standard.

## LARD.

Lard is defined by the Montana Rules and Regulations as follows: "Lard is the rendered, fresh fat from hogs in good health at the time of slaughter, is clean, free from rancidity, and contains, necessarily incorporated in the process of rendering not more than one per cent of substance other than fatty acids and fat.

"Leaf lard is lard rendered at moderately high temperatures from the internal fat of the abdomen of the hog, excluding that adherent of the intestines, and has an iodine number not greater than sixty.

"Neutral lard is lard rendered at low temperatures."

As the definition implies lard is the fat of hogs separated by heat. When lard is produced on a small scale as in a butcher shop, the fat is rendered by heat directly or steam under pressure in an open kettle. In large establishments the rendering is done in closed vats with steam under pressure.

The choicest lard is the leaf lard which is produced from the fat surrounding the kidneys. There is very little strictly pure leaf lard on the market as usually the mixed fats from various parts of the animal are rendered together.

The chief sophistications of lard are in the nature of frauds, little or no harmful ingredients being found except in cases where an unhealthy animal has been slaughtered.

At one time it was the practice to incorporate large enough quantities of moisture in the lard to materially lower its quality, but this adulteration at present is rarely if ever practiced. The foreign substances most usually found in lard are foreign fats and oils as beef fat, cotton seed oil or cotton seed stearine, corn oil, sesame oil and peanut oil. Of these beef fat and cotton seed products are by far the most usually found.

In connection with beef fat it may be mentioned that the addition of five per cent beef stearine as a "Stiffener" was at one time advocated by the trade. Such admixture is, however, considered by food laws as an adulteration. In order to "stiffen" soft lard, lard stearine is now used.

Mixtures of lard and these foreign fats are properly called "compounds" or "lard substitutes," etc., and as such have a valuable place on the market, but it is a violation of the law to sell them as pure lard.

## PROTECTION OF WELLS.

It is an accepted principle of sanitary science that wells should be protected from any possibility of pollution by constructions that will prevent impurities entering either from the top or sides by surface drainage or infiltration. The importance of this principle is forcibly illustrated by the following description of a certain dug well which became very unsanitary after some years of use:

The well, twenty-two feet deep, was cased with loose stones which came to the surface of the ground only. This construction did not prevent pollution by surface drainage and infiltration on occasions when the surrounding lawn was irrigated from a contaminated irrigating ditch. The top, made of ordinary boards, was not watertight. This allowed contamination in the form of dust and hen manure, frequently deposited on the top, to enter the well water. Kitchen waste thrown near the well made the ground more or less impure. The privy vault was seventy-five feet away and there were no barnyards near enough to cause any danger of contamination. After the chemical analysis reported below was made, the well was considered unsafe for domestic use and a new driven well was therefore constructed in unpolluted ground further from the kitchen and the old well filled up.

In order to determine the actual effect of the faulty construction of the dug well on the purity of the water, comparative chemical analyses were made of samples taken from both wells, with the following results:

	Parts per Million.	
	Dug Well.	Driven Well.
Albuminoid ammonia .....	0.64	0.035
Free ammonia .....	0.31	0.015
Nitrates .....	0.025	None
Nitrates .....	2.6	3.6
Chlorine .....	13.4	9.7

The sanitary qualities of a water can be determined from the above tests. The presence of much albuminoid ammonia shows that a water contains organic pollution in solution. Bacteria in the water act upon the organic matter, converting the nitrogen it contains to free ammonia. Another kind of bacteria act upon the ammonia and convert it to nitrite. Further action of another kind of bacteria changes the nitrite to nitrate. Chlorine is a constituent of kitchen waste and sewage, and when the normal chlorine is known this forms a valuable indication of pollution. A combination of high free ammonia



and nitrites points very strongly to contamination from animal sources. A comparison of the two analyses shows that the dug well contains a large amount of organic pollution. The high free ammonia and nitrites indicate a contamination from animal sources and show a state of bacterial change that is considered dangerous in drinking water. Both the sanitary inspection of the wells and the analysis show that it was not a good risk to continue using the water from it.

The new driven well was pronounced safe for domestic use after comparing the analysis with those of ten or more other good wells in the same locality.

It is apparent that the unsanitary condition of the dug well was due largely to a poorly constructed top and a casing and curb which did not prevent pollution by surface drainage and infiltration.

Professor C. C. Young of the water laboratory of the Kansas state board of health recommends the following construction as a means of giving proper protection from pollution:

"The curb of the well should be twelve to fourteen inches above the surface of the ground. At the surface of the ground there should be a platform of concrete or stone, sloping away from the walls of the well. The edge of this platform should be at least four feet from the wall. The walls themselves should be so constructed that no water can pass through them without having percolated through at least eight to twelve feet of soil, depending upon the character of the soil. The top of the well should be covered with a watertight cover of wood, concrete or stone.

"Bored, drilled or driven wells usually have a shallow pit to protect the pumping apparatus from frost. These all should be constructed and protected with as much care as the dug well. Drainage entering this pit, either by the direct route of falling through the cover or percolating through a few inches of soil, is cumulative and will follow the path of least resistance down the casing and in time grossly pollute the water below.

"By carefully following these directions and locating the well at least 100 feet from a privy or cesspool, there need be little danger of having a contaminated well unless the ground water itself is polluted by larger sources than privy or cesspool. Or again, the privy or cesspool may be in the same water level that furnishes the well with water. In this case the well should be abandoned at once."

## AN ALKALI WELL WATER WITH BENEFICIAL QUALITIES.

The writer has previously directed attention to the composition of certain alkali well waters found in Montana. The occurrence of soluble salts in the soil is the natural result of rock disintegration in an arid region. The ground waters in such a region will often contain mineral salts in solution which are popularly termed alkali.

These alkali salts are the same ones that occur in natural mineral waters known to have medicinal qualities. Oftentimes the concentration of such waters is so high that it is impossible to use them for domestic purposes. Fortunately there are many alkali well waters in the state that are not only suitable for home use but have beneficial effects even when used constantly.

It is the purpose of this article to record the analysis of such a well, which is located at Custer, and also to state the experiences of the people who use the water for drinking.

	Grains per Gallon.
Calcium carbonate .....	5.46
Magnesium carbonate .....	4.72
Sodium carbonate .....	12.72
Sodium sulphate (Anhydrous) .....	61.87
Sodium chloride .....	3.03
Sodium nitrate .....	0.09
TOTAL .....	87.89

The calcium, magnesium and sodium carbonates shown in the analysis are present in the form of bicarbonates. Sodium bicarbonate is ordinary baking soda, and sodium sulphate is popularly called Glauber's salts, and sodium chloride is common salt.

It is claimed that a family suffering with biliousness and chronic constipation were entirely cured by the constant use of this water. It has a laxative effect, but is still considered a good water for drinking. It causes no difficulty in the laundry. Some alkali waters when used for cooking vegetables impart a dark color and a bitter taste and also make very poor tea and coffee. Those who have used the water from the Custer well state that no bad results in these particulars are noticeable.

A record of these experiences, along with a knowledge of the composition of the water, is valuable in the interpretation of other analyses of alkali waters, because it is a well known fact that the medicinal effects of a water cannot be determined from the chemical analysis alone. Clinical data obtained by a

physician and the experiences of people using a given water are essential factors in the interpretation of an analysis.

This analysis and experiences with other waters seem to point to the conclusion that sixty grains of anhydrous sodium sulphate per gallon is not above the limit allowable in a water that is to be used for domestic purposes. This statement must necessarily be modified in a given case by the amount of other salts present.

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